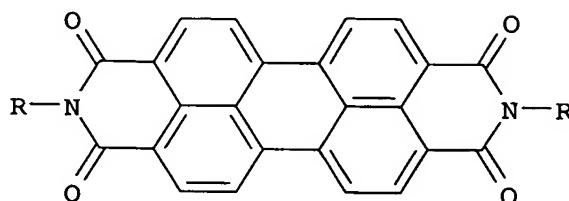


Amended claims

1. A process for preparing perylene-3,4:9,10-tetracarboxylic diimides of the general formula I

10



I

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where

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R is C_1-C_{30} -alkyl whose carbon chain may be interrupted by one or more $-O-$ moieties and/or which may be substituted by one or more substituents selected from the group consisting of C_5-C_8 -cycloalkyl (which may be substituted by one or more C_1-C_6 -alkyl substituents), phenyl or phenyl- C_1-C_6 -alkyl (which may each be substituted by one or more C_1-C_{18} -alkyl and/or C_1-C_6 -alkoxy substituents), $-OCOR^1$, $-N(R^1)_2$, $-SO_2NH_2$, $-SO_2N(R^1)_2$, $-CON(R^1)_2$ and $-COOR^1$;

25

30

C_5-C_8 -cycloalkyl whose carbon skeleton may be interrupted by one or more moieties selected from the group consisting of $-O-$, $-S-$ and $-NR^2-$ and/or which may be substituted by one or more C_1-C_6 -alkyl substituents;

35

phenyl, phenyl- C_1-C_6 -alkyl, naphthyl or hetaryl, which may each be substituted by one or more substituents selected from the group consisting of C_1-C_{18} -alkyl, C_1-C_6 -alkoxy, phenylazo, naphthylazo, pyridylazo, pyrimidylazo, cyano, $-N(R^1)_2$, $-CON(R^1)_2$ and $-COOR^1$;

R^1 is C_1-C_6 -alkyl, C_5-C_8 -cycloalkyl, phenyl or phenyl- C_1-C_6 -alkyl;

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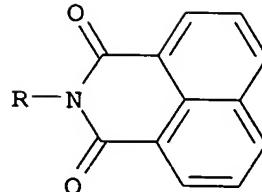
R^2 is C_1-C_6 -alkyl, phenyl or phenyl- C_1-C_6 -alkyl,

by dimerizing a naphthalene-1,8-dicarboximide of the formula II

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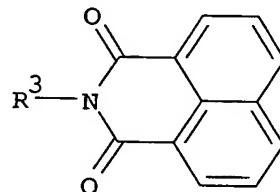
II

10 which comprises effecting said dimerizing in a substantially homogeneous reaction medium consisting essentially of an apolar aprotic organic solvent and an alkali metal base and subsequently reoxidizing the resulting alkali metal salt of the leuco form of the perylene-3,4:9,10-tetracarboxylic diimide in the presence of a polar solvent.

15

2. A process for preparing perylene-3,4:9,10-tetracarboxylic dianhydride, which comprises dimerizing a naphthalene-1,8-dicarboximide of the formula IIa

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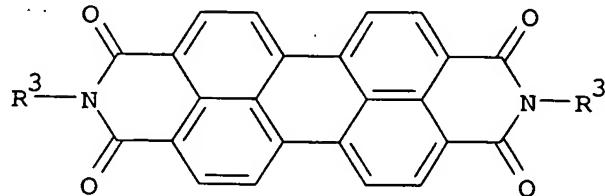


IIa

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30 where R³ is cyclohexyl or phenyl which may each be substituted by up to three C₁-C₄-alkyl radicals, in a substantially homogeneous reaction medium consisting essentially of an apolar aprotic organic solvent and an alkali metal base and effecting the subsequent reoxidation of the resulting alkali metal salt of the leuco form of the perylene-3,4:9,10-tetracarboxylic diimide of the formula Ia

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Ia

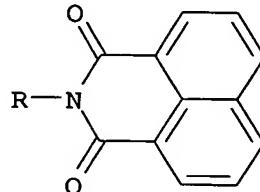
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45 in the presence of an inert organic solvent, of an alkali metal base and of water to hydrolyze the diimide to the tetraalkali metal salt of perylene-3,4:9,10-tetracarboxylic acid and finally subjecting this to the action of an aqueous

inorganic acid to convert it into
perylene-3,4:9,10-tetracarboxylic dianhydride.

3. A process for preparing naphthalene-1,8-dicarboximides of the
5 general formula II

10



II

15 where

R is C_1-C_{30} -alkyl whose carbon chain may be interrupted by
one or more -O- moieties and/or which may be substituted
by one or more substituents selected from the group
20 consisting of C_5-C_8 -cycloalkyl (which may be substituted
by one or more C_1-C_6 -alkyl substituents), phenyl or
phenyl- C_1-C_6 -alkyl (which may each be substituted by one
or more C_1-C_{18} -alkyl and/or C_1-C_6 -alkoxy substituents),
-OCOR¹, -N(R¹)₂, -SO₂NH₂, -SO₂N(R¹)₂, -CON(R¹)₂ and -COOR¹;

25 C_5-C_8 -cycloalkyl whose carbon scaffold may be interrupted
by one or more moieties selected from the group
consisting of -O-, -S- and -NR²- and/or which may be
substituted by one or more C_1-C_6 -alkyl substituents;

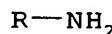
30 phenyl, phenyl- C_1-C_6 -alkyl, naphthyl or hetaryl, which
may each be substituted by one or more substituents
selected from the group consisting of C_1-C_{18} -alkyl,
 C_1-C_6 -alkoxy, phenylazo, naphthylazo, pyridylazo,
35 pyrimidylazo, cyano, -N(R¹)₂, -CON(R¹)₂ and -COOR¹;

R¹ is C_1-C_6 -alkyl, C_5-C_8 -cycloalkyl, phenyl or
phenyl- C_1-C_6 -alkyl;

40 R² is C_1-C_6 -alkyl, phenyl or phenyl- C_1-C_6 -alkyl,

by reacting naphthalene-1,8-dicarboxylic anhydride with a
primary amine of the general formula III

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III

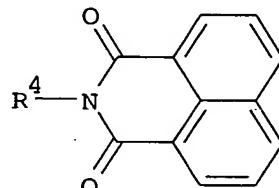
which comprises effecting said reacting in the presence of a polar aprotic organic solvent and also of an organic or inorganic acid or of an acidic transition metal salt catalyst or in the presence of phenol.

5

4. A process as claimed in claim 3, wherein the reaction mixture (after the naphthalene-1,8-dicarboximide II and its hydrolysis products have been removed) is subjected to an extraction or an azeotropic distillation under atmospheric pressure to recover the organic solvent together with unconverted amine for further reactions.

10 5. Naphthalene-1,8-dicarboximides of the general formula IIb

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IIb

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where:

25 R^4 is C_1-C_{30} -alkyl which is substituted by one or more substituents selected from the group consisting of C_5-C_8 -cycloalkyl (which may be substituted by one or more C_1-C_6 -alkyl substituents), phenyl or phenyl- C_1-C_6 -alkyl (which may each be substituted by one or more C_1-C_{18} -alkyl and/or C_1-C_6 -alkoxy substituents), $-OCOR^1$, $-SO_2NH_2$, $-SO_2N(R^1)_2$, $-CON(R^1)_2$ and $-COOR^1$ and whose carbon chain may be interrupted by one or more $-O-$ moieties;

30 C_5-C_8 -cycloalkyl whose carbon skeleton is interrupted by one or more moieties selected from the group consisting of $-O-$, $-S-$ and $-NR^2-$ and/or is substituted by one or more C_1-C_6 -alkyl substituents;

35 phenyl or phenyl- C_1-C_6 -alkyl which are each substituted by one or more substituents selected from the group consisting of C_1-C_{18} -alkyl, C_1-C_6 -alkoxy, phenylazo, naphthylazo, pyridylazo, pyrimidylazo, cyano, $-CON(R^1)_2$ and $-COOR^1$;

40 naphthyl, 2- or 3-pyrryl, 2-, 3- or 4-pyridyl, 2-, 4- or 5-pyrimidyl, 3-, 4- or 5-pyrazolyl, 6-quinaldyl, 3, 5-, 6- or 8-quinolinyl, 2-benzoxazolyl, 5-benzothiadiazolyl,

45

43

or 1- or 5-isoquinolyl which may each be substituted by one or more substituents selected from the group consisting of C_1 - C_{18} -alkyl, C_1 - C_6 -alkoxy, phenylazo, naphthylazo, pyridylazo, pyrimidylazo, cyano, $-CON(R^1)_2$ and $-COOR^1$;

5

R^1 is C_1 - C_6 -alkyl, C_5 - C_8 -cycloalkyl, phenyl or phenyl- C_1 - C_6 -alkyl;

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R^2 is C_1 - C_6 -alkyl, phenyl or phenyl- C_1 - C_6 -alkyl.

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